

## SEQUENCE LISTING

<110> McIntosh, J. Michael  
 Olivera, Baldomero M.  
 Cruz, Lourdes J.  
 Corpuz, Gloria P.  
 Jones, Robert M.  
 Garrett, James E.

<120> Conotoxin Peptides

<130> Conotoxin Peptides

<140>

<141>

<150> US 60/173,298

<151> 1999-12-28

<150> US 60/118,381

<151> 1999-01-29

<150> US 09/493,143

<151> 2000-01-28

<160> 20

<170> PatentIn Ver. 2.0

<210> 1

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:generic  
 conotoxin peptide sequence

<220>

<221> PEPTIDE

<222> (1)..(2)

<223> Xaa at residue 1 is des-Xaa, Asn, Gln or pyro-Glu;  
 Xaa at residue 2 is des-Xaa, Gly, Ala, Glu, gamma-  
 carboxy-Glu, Asp, Asn, Ser, Thr, g-Asn (where g is  
 glycosylation), g-Ser or g-Thr;

<220>

<221> PEPTIDE

<222> (3)..(7)

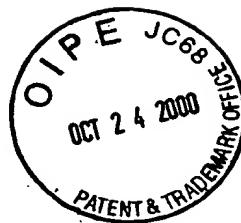
<223> Xaa at residue 3 is Val, Ala, Gly, Leu, Ile, Ser,  
 Thr, g-Asn, g-Ser or g-Thr; Xaa at residue 7 is  
 Phe, Tyr, meta-Tyr, ortho-Tyr, nor-Tyr,  
 mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,  
 O-phospho-Tyr,

<220>

<221> PEPTIDE

<222> (7)

<223> nitro-Tyr, Trp (D or L), neo-Trp, halo-Trp (D or  
 L), any synthetic aromatic amino acid, an  
 aliphatic amino acid bearing linear or branched  
 saturated hydrocarbon chains such as Leu (D or L),  
 Ile and



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OCT 30 2000

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<220>  
 <221> PEPTIDE  
 <222> (7)..(8)  
 <223> Val or non-natural derivatives of the aliphatic amino acid; Xaa at residue 8 is Lys, Arg, homolysine, homoarginine, ornithine, nor-Lys, His, N-methyl-Lys, N,N'-dimethyl-Lys, N,N',N''-trimethyl-Lys,

<220>  
 <221> PEPTIDE  
 <222> (8)..(9)  
 <223> any synthetic basic amino acid, Ser, Thr, g-Ser, g-Thr or any hydroxylated synthetic residue; Xaa at residue 9 is an aliphatic amino acids bearing linear or branched saturated hydrocarbon chains such

<220>  
 <221> PEPTIDE  
 <222> (9)  
 <223> as Leu (D or L), Ile and Val or non-natural derivatives of the aliphatic amino acid, Met, Phe, Tyr, meta-Tyr, ortho-Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr,

<220>  
 <221> PEPTIDE  
 <222> (9)..(11)  
 <223> Trp (D or L), neo-Trp, halo-Trp (D or L) or any synthetic aromatic amino acid; Xaa at residue 11 is His, Ser, Thr, g-Ser, g-Thr, an aliphatic amino acid bearing linear or branched saturated

<220>  
 <221> NP\_BIND  
 <222> (11)  
 <223> hydrocarbon chains such as Leu (D or L), Ile and Val, non-natural derivatives of the aliphatic amino acid, Phe, Tyr, meta-Tyr, ortho-Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr,

<220>  
 <221> PEPTIDE  
 <222> (11)..(14)  
 <223> O-phospho-Tyr, nitro-Tyr, Trp (D or L), neo-Trp, halo-Trp (D or L) or a synthetic aromatic amino acid; Xaa at residue 12 is Pro, hydroxy- Pro (Hyp) or g-Hyp; Xaa at residue 14 is des-Xaa, Gly, Ala,

<220>  
 <221> PEPTIDE  
 <222> (14)  
 <223> Lys, Arg, homolysine, homoarginine, ornithine, nor-Lys, His, N-methyl-Lys, N,N'-dimethyl-Lys, N,N',N''-trimethyl-Lys or any synthetic basic amino acid.

<400> 1  
 Xaa Xaa Xaa Cys Cys Gly Xaa Xaa Xaa Cys Xaa Xaa Cys Xaa  
 1 5 10

<210> 2  
 <211> 13  
 <212> PRT  
 <213> Conus marmoreus

<220>  
 <221> PEPTIDE  
 <222> (7)..(8)  
 <223> Xaa at residue 7 is Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-Phospho-Tyr or nitro-Tyr; Xaa at residue 8 is Lys, N-methyl-Lys, N,N-dimethyl-Lys or N,N,N-trimethyl Lys

<220>  
 <221> PEPTIDE  
 <222> (12)  
 <223> Xaa at residue 12 is Pro or hydroxy-Pro.

<400> 2  
 Asn Gly Val Cys Cys Gly Xaa Xaa Leu Cys His Xaa Cys  
           1                  5                  10

<210> 3  
 <211> 12  
 <212> PRT  
 <213> Conus marmoreus

<220>  
 <221> PEPTIDE  
 <222> (6)..(7)  
 <223> Xaa at residue 6 is Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-Phospho-Tyr or nitro-Tyr; Xaa at residue 7 is Lys, N-methyl-Lys, N,N-dimethyl-Lys or N,N,N-trimethyl Lys

<220>  
 <221> PEPTIDE  
 <222> (11)  
 <223> Xaa at residue 11 is Pro or hydroxy-Pro

<400> 3  
 Gly Val Cys Cys Gly Xaa Xaa Leu Cys His Xaa Cys  
           1                  5                  10

<210> 4  
 <211> 12  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Description of Unknown Organism:unknown Conus species

<220>  
 <221> PEPTIDE  
 <222> (6)..(7)  
 <223> Xaa at residue 6 is Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-Phospho-Tyr or nitro-Tyr; Xaa at residue 8 is Lys, N-methyl-Lys, N,N-dimethyl-Lys or N,N,N-trimethyl Lys.

<220>  
 <221> PEPTIDE  
 <222> (11)  
 <223> Xaa at residue 11 is Pro or hydroxy-Pro

<400> 4  
 Gly Val Cys Cys Gly Xaa Xaa Leu Cys His Xaa Cys  
           1                  5                  10

<210> 5  
 <211> 11  
 <212> PRT  
 <213> Conus bandanus

<220>  
 <221> PEPTIDE  
 <222> (5)..(6)  
 <223> Xaa at residue 5 is Tyr, mono-halo-Tyr,  
           di-halo-Tyr, O-sulpho-Tyr, O-phospho-Tyr,  
           nitro-Tyr; Xaa at residue 6 is Lys, N-methy-Lys,  
           N,N-dimethyl-Lys or N,N,N-trimethyl-Lys;

<220>  
 <221> PEPTIDE  
 <222> (10)  
 <223> Xaa at residue 10 is Pro or hydroxy-Pro (Hyp)

<400> 5  
 Ala Cys Cys Gly Xaa Xaa Lys Cys Ser Xaa Cys  
           1                  5                  10

<210> 6  
 <211> 13  
 <212> PRT  
 <213> Conus textile

<220>  
 <221> PEPTIDE  
 <222> (1)..(11)  
 <223> Xaa at residue 1 is Gln or pyro-Glu; Xaa at  
           residue 6 is Tyr, mono-halo-Tyr, di-halo-Tyr,  
           O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr; Xaa at  
           residue 11 is Pro or hydroxy-Pro (Hyp)

<400> 6  
 Xaa Thr Cys Cys Gly Xaa Arg Met Cys Val Xaa Cys Gly  
           1                  5                  10

<210> 7  
 <211> 13  
 <212> PRT  
 <213> Conus pennaceus

<220>  
 <221> PEPTIDE  
 <222> (7)..(11)  
 <223> Xaa at residue 7 is Lys, N-methy-Lys,  
           N,N-dimethyl-Lys or N,N,N-trimethyl-Lys; Xaa at  
           residue 11 is Pro or hydroxy-Pro (Hyp)

<400> 7

Ser Thr Cys Cys Gly Phe Xaa Met Cys Ile Xaa Cys Arg  
 1 5 10

<210> 8  
 <211> 25  
 <212> DNA  
 <213> Conus marmoreus

<220>  
 <221> modified\_base  
 <222> (14)  
 <223> i

<400> 8  
 caggatccaa yggngtbtgy tgygg 25

<210> 9  
 <211> 28  
 <212> DNA  
 <213> Conus marmoreus

<220>  
 <221> modified\_base  
 <222> (26)  
 <223> i

<400> 9  
 ctg gatccgg rtgrcavary ttrtance 28

<210> 10  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:universal  
 primer

<400> 10  
 aagctcgagt aacaacgcag agt 23

<210> 11  
 <211> 805  
 <212> DNA  
 <213> Conus marmoreus

<220>  
 <221> CDS  
 <222> (82)..(264)

<400> 11  
 ggcgaataca cctggcaggt actcaacgaa cttcaggaca cattcttttc acctggacac 60  
 tggaaactga caacaggcag a atg cgc tgt ctc cca gtc ttg atc att ctt 111  
 Met Arg Cys Leu Pro Val Leu Ile Ile Leu  
 1 5 10

ctg ctg ctg act gca tct gca cct ggc gtt gtt gtc cta ccg aag acc 159  
 Leu Leu Leu Thr Ala Ser Ala Pro Gly Val Val Val Leu Pro Lys Thr  
 15 20 25

<400> 13  
atg cgc tgt ctc cca gtc ttg atc att ctt ctg ctg ctg act gca tct 48  
Met Arg Cys Leu Pro Val Leu Ile Ile Leu Leu Leu Leu Thr Ala Ser  
1 5 10 15

gca cct ggc gtt gat gtc cta ccg aag acc gaa gat gat gtg ccc ctg 96  
 Ala Pro Gly Val Asp Val Leu Pro Lys Thr Glu Asp Asp Val Pro Leu  
                   20                  25                  30

tca tct gtc tac gat aat aca aag agt atc cta cga gga ctt ctg gac 144  
 Ser Ser Val Tyr Asp Asn Thr Lys Ser Ile Leu Arg Gly Leu Leu Asp  
                   35                  40                  45

aaa cgt gct tgc tgt ggc tac aag ctt tgc tca cca tgt taaccagcat 193  
 Lys Arg Ala Cys Cys Gly Tyr Lys Leu Cys Ser Pro Cys  
                   50                  55                  60

gaaggatcc 202

<210> 14  
 <211> 61  
 <212> PRT  
 <213> Conus bandanus

<400> 14  
 Met Arg Cys Leu Pro Val Leu Ile Ile Leu Leu Leu Leu Thr Ala Ser  
           1                  5                  10                  15

Ala Pro Gly Val Asp Val Leu Pro Lys Thr Glu Asp Asp Val Pro Leu  
                   20                  25                  30

Ser Ser Val Tyr Asp Asn Thr Lys Ser Ile Leu Arg Gly Leu Leu Asp  
                   35                  40                  45

Lys Arg Ala Cys Cys Gly Tyr Lys Leu Cys Ser Pro Cys  
                   50                  55                  60

<210> 15  
 <211> 205  
 <212> DNA  
 <213> Conus textile

<220>  
 <221> CDS  
 <222> (1)..(186)

<400> 15  
 atg cac tgt ctc cca atc ttc gtc att ctt ctg ctg ctg act gca tct 48  
 Met His Cys Leu Pro Ile Phe Val Ile Leu Leu Leu Leu Thr Ala Ser  
           1                  5                  10                  15

gga cct agc gtt gat gcc caa ctg aag acc aaa gat gat gtg ccc ctg 96  
 Gly Pro Ser Val Asp Ala Gln Leu Lys Thr Lys Asp Asp Val Pro Leu  
                   20                  25                  30

tca tct ttc cga gat cat gca aag agt acc cta cga aga ctt cag gac 144  
 Ser Ser Phe Arg Asp His Ala Lys Ser Thr Leu Arg Arg Leu Gln Asp  
                   35                  40                  45

aaa cag act tgc tgt ggc tat agg atg tgt gtt cct tgt ggt 186  
 Lys Gln Thr Cys Cys Gly Tyr Arg Met Cys Val Pro Cys Gly  
                   50                  55                  60

taaccagcat gaaggatcc 205

<210> 16

<211> 62  
 <212> PRT  
 <213> Conus textile

<400> 16  
 Met His Cys Leu Pro Ile Phe Val Ile Leu Leu Leu Leu Thr Ala Ser  
     1                    5                    10                    15  
 Gly Pro Ser Val Asp Ala Gln Leu Lys Thr Lys Asp Asp Val Pro Leu  
                     20                    25                    30  
 Ser Ser Phe Arg Asp His Ala Lys Ser Thr Leu Arg Arg Leu Gln Asp  
           35                    40                    45  
 Lys Gln Thr Cys Cys Gly Tyr Arg Met Cys Val Pro Cys Gly  
     50                    55                    60

<210> 17  
 <211> 211  
 <212> DNA  
 <213> Conus pennaceus

<220>  
 <221> CDS  
 <222> (1)..(189)

<400> 17  
 atg cgc tgt ctc cca gtc ttc gtc att ctt ctg ctg ctg act gca tct 48  
 Met Arg Cys Leu Pro Val Phe Val Ile Leu Leu Leu Leu Thr Ala Ser  
     1                    5                    10                    15  
 gca cct agc gtt gat gcc aaa gtt cat ctg aag acc aaa ggt gat ggg 96  
 Ala Pro Ser Val Asp Ala Lys Val His Leu Lys Thr Lys Gly Asp Gly  
                     20                    25                    30  
 ccc ctg tca tct ttc cga gat aat gca aag agt acc cta caa aga ctt 144  
 Pro Leu Ser Ser Phe Arg Asp Asn Ala Lys Ser Thr Leu Gln Arg Leu  
           35                    40                    45  
 cag gac aaa agc act tgc tgt ggc ttt aag atg tgt att cct tgt 189  
 Gln Asp Lys Ser Thr Cys Cys Gly Phe Lys Met Cys Ile Pro Cys  
     50                    55                    60  
 cgттаaccag catgaaggat cc 211

<210> 18  
 <211> 63  
 <212> PRT  
 <213> Conus pennaceus

<400> 18  
 Met Arg Cys Leu Pro Val Phe Val Ile Leu Leu Leu Leu Thr Ala Ser  
     1                    5                    10                    15  
 Ala Pro Ser Val Asp Ala Lys Val His Leu Lys Thr Lys Gly Asp Gly  
                     20                    25                    30  
 Pro Leu Ser Ser Phe Arg Asp Asn Ala Lys Ser Thr Leu Gln Arg Leu  
           35                    40                    45  
 Gln Asp Lys Ser Thr Cys Cys Gly Phe Lys Met Cys Ile Pro Cys  
     50                    55                    60



<210> 19  
<211> 24  
<212> DNA  
<213> *Conus marmoreus*

<400> 19  
ggaattcgga agctgactac aagc

24

<210> 20  
<211> 22  
<212> DNA  
<213> *Conus marmoreus*

<400> 20  
ctggatcctt catgctgggtt aa

22